

# Legend Acoustics

## KURRE 4 STANDMOUNT LOUDSPEAKERS



**Hold on to your hats!** Legend Acoustic's globetrotting designer, Dr Rod Crawford, has found time in his busy schedule to re-design his legendary Kurre bookshelf monitors. Initially, when I heard about the re-design, I wondered why he bothered: the original Kurre was an absolutely fabulous speaker.

After just a few days listening to a pair of completely run-in Kurre 4s I was no longer wondering. These new speakers are a clear step ahead of the original models and set a new benchmark for small monitor loudspeakers.

### The Equipment

Despite looking uncannily similar to the originals, and having an external cabinet size that's virtually a dead spit (200mm wide, 300mm deep and 400mm high), the Kurre 4 cabinet contains completely different drivers and, self-evidently, a completely different crossover network.

In the new Kurre 4, Legend has paired a bass driver made in Denmark by Scan-Speak with a tweeter made in Germany by Visaton. And if this isn't multinational

enough for you, the crossover inductors are made in the USA, the resistors in Canada, and the capacitors in Germany. Is there anything Australian in there, apart from the design? Sure is! The cabinets are made right here in Australia (you'd be surprised at just how many well-known and so-called 'Australian' loudspeaker manufacturers are having their cabinets made in China), the acoustic fill is also made here (from good old Aussie sheep) and so is all the internal wiring.

The Scan-Speak woofer has benefited from many gradual improvements since it was first released (sometime in 1995 or so, as I recall.) One thing that's remained a constant, and one of the reasons for the driver's popularity with high-end designers right around the world, is the enormous 2.4-kilo (unshielded) magnet that hangs off the end of the beautifully detailed cast alloy frame. Another constant is the very heavy coating over the carbon-fibre cone, resulting in a surface that always reminds me of a rough-pulp cone (and which distinguishes

this driver from the very similar 8535. Most audiophiles agree the coating gives this 8545 a far superior midrange sound).

Legend Acoustics adds additional mass to the cone by gluing carefully shaped slivers of balsa to the rear. This appears to be done meticulously by hand and when I say 'meticulously', I carefully examined and compared the positioning of the slivers on the two drivers and couldn't see even the smallest difference between the two. I'd guess Crawford is adding the mass so that he can not only take advantage of the superior transient response made possible by the large magnet, but by the increase in extension from the added mass, despite the relatively low cabinet volume—approximately 15-litres, which (obviously not co-incidentally!) is the driver manufacturer's theoretical optimum volume for this driver. Scan-Speak specs the driver diameter at 177mm, but this is the overall diameter. The more important Theile/Small diameter is 138mm, for an effective piston diameter (Sd) of 150cm<sup>2</sup>.

Obviously more than familiar with the prevailing climatic conditions in

Brand: Legend Acoustics  
 Model: Kurre 4  
 Category: Bookshelf Loudspeaker  
 RRP: \$3,499  
 Warranty: Seven Years  
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Australia (Legend recently moved its base of operations from the nation's inland capital of Canberra to the far more salubrious surrounds of NSW's southern coastline), Crawford uses speakers whose cones have rubber roll surrounds, as these have proved capable of withstanding the high levels of ultraviolet radiation prevalent in Australia that spell the death-knell for the foam surrounds used on most imported

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loudspeakers (and for those citizens not sensible enough to use sunscreen when outdoors!). It's also one of the many reasons Legend is able to offer a seven-year guarantee.

High frequencies are delivered by a Visaton KE25 ceramic-dome tweeter. The high-tech ceramic dome is exceedingly brittle, so it's protected by a perforated metal grille that's fitted with its own low-pass acoustic filter to damp any resonances in the material. This kicks in at around 25kHz. The grille also aids dispersion at high frequencies, which is important with a dome diameter of 25mm. Behind the dome, pole-piece perforations and cavity damping ensure a very low-frequency fundamental resonance. The voice-coil cavity is vented to reduce compression effects.

This particular Visaton driver is highly unusual amongst tweeters in that it has

impedance correction built in. Around the grille are three concentric rings of felt, stepped so each ring protrudes further than the one inside it, rather like the tiered seating around an auditorium. The intention is to eliminate diffraction effects—most of which, presumably, would originate from the protective grille.

The crossover network represents the state-of-the-art insofar as crossover networks are concerned. No cheap wire-wound cement-encased resistors for Legend! Nope, Dr Crawford is using ceramic cored metal-oxide non-inductive Lynx resistors, which are made in Canada by Solen. The inductance of these is just 0.1µH compared with 0.8µH for cement wirewound resistors, but these resistors have other admirable attributes for use in a crossover network, including a high overload capacity, very low noise, a small linear temperature co-efficient and excellent stability at high temperatures.

Legend is not using ordinary crossover capacitors either. Instead, the capacitors are sourced from Wima in Germany. Wima specialises in building capacitors

and has an extraordinarily wide range. The capacitors used in the Kurre 4 are from its MKP4 series. These are metallised polypropylene capacitors with very low dielectric absorption, a negative temperature coefficient and extremely low dissipation factors (tan delta). Available in a variety of voltage ratings, Crawford uses the 250-volt versions.

Crawford's switch to Wima capacitors in the Kurre 4 is interesting, because when he designed speakers for Linn in Scotland, he was the first there to use Solen capacitors and has used Solen capacitors in several Legend Acoustics models. His view is that capacitor quality has a 'second order' effect on sound quality (whereas one's choice of drivers and crossover configuration result in first-order effects). Responding to an e-mail asking why he was using Wimas in the Kurre 4, and what importance he

placed on capacitor quality, Crawford replied: *'One can certainly hear the differences between capacitors—but the choice cannot cure a badly designed speaker. I listened to a number of capacitors when designing the new Kurre, Kantu and Kurka speakers, including various Solens, ICW, ME, generic Asian and Wimas, and found the Wimas to be the best in terms of clarity and naturalness. Nonetheless, as a physicist I find capacitors frustrating because although I can hear differences between different capacitors I cannot measure any differences.'*

As for the inductors, they hail from Alphacore in the USA. Rather than use copper wire, Alphacore winds its inductors from copper or silver foil. The advantages of foil tape inductors are considerable, and include negligible skin effect below 100kHz, flat inductive reactance from 5Hz to 50kHz, no saturation distortion, reduced power loss, low d.c. resistance, and an extremely low stored charge. Last, but not least, they run very cool because of their high space factor and winding density. Their disadvantage is that they're expensive... very expensive.

Look inside a Kurre cabinet and you'll find that Legend has paid considerable attention to eliminating cabinet resonances. The cabinet is made from 25mm MDF and the two inside walls have additional moulded sections of wood attached, so their surfaces are curved. The walls are also cross-braced to each other. Rather than just sitting in the usual circular cut-out, the Kurre bass driver sits in a scalloped recess that's obviously been meticulously routed out to allow maximum air-flow from the rear of the cone—a technique that's been proved to improve performance. Unfortunately, this technique doesn't leave too much 'meat' for the six retaining screws, so I wouldn't recommend removing drivers **unless**

absolutely necessary, because you can't simply rotate them slightly to expose virgin wood.

Around the back of the Kurre you'll find the bass reflex port (a very long one, incidentally, at 250mm, so it ends up within 23mm of the rear of the front baffle, which is a great idea, because it means you won't get too many higher frequencies travelling down the tube). The tube itself is made from PVC and has an internal diameter of 50mm. Above the port is a bi-wire speaker terminal with positively monster-sized knurled gold-plated nuts. Their huge diameter (and the knurling) makes them super-easy to tighten, and the posts underneath will take spades or wire, while the terminals themselves will also accommodate banana plugs. The links are the usual gold-plated buss-bars.

## Once you've heard Legend's new Kures in your home environment, you'll be doing plenty of serious listening, because they sound magic!

Legend rates the Kurre 4's frequency response as extending from 45Hz to 25kHz. Sensitivity is quoted at 87dB SPL for one watt at a distance of one metre, and nominal impedance as 8 ohms. Each cabinet weighs 13kg.

### Listening Sessions

The 'upside-down' and offset driver geometry (the tweeter is at the bottom of the cabinet, and offset differently from the 'left' channel speaker to the 'right' channel, means that I think it's mandatory (if you want the best sound) to place the speakers on stands whose supporting surface is the same size (or slightly smaller) than the Kurre 4s themselves. You can use wall-mount brackets, of course, so long as the same conditions are met. While you can place the speakers on shelves if desired, the front edge of the speaker cabinet should be level with the edge of the shelf, and there should be plenty of space around the rear of the cabinet for the port to 'breathe'. As with all speakers, however, you'll get the ultimate performance when they're mounted on stands, with the tweeters at (or at least very close to) ear level, and the stands themselves are around a metre out from a rear wall.

(For the record, this is how I auditioned them.) If your better half isn't happy with speakers positioned this far into the room, the Kurre 4s are small and light enough that you can easily lift them—and the stands—closer to the wall whenever you're not doing any serious listening.

My guess, however, is that once you've heard Legend's new Kures in your home environment, you'll be doing plenty of serious listening, because they sound magic! I actually thought long and hard about using this particular word, but after listening and re-listening to the Kurre 4s, I decided that it was entirely appropriate, applying particularly to the midrange sound, which truly is magical. The mids have an ethereal purity that I'd once considered the sole domain of tweeters. I listened to Kasey

Chambers' completely curious (and totally unmistakable) voice through the Kures and discovered nuances that had previously eluded me, despite my passing familiarity with her famous *Not Pretty Enough*. The Kures reveal rather cruelly not just her dramatic changes in vocal quality as she moves from note to note, but also her remarkable pronunciation difficulties. But even though they're cruel in showing the truth, they're also kind in that you get a real sense of sympathy for her, as her waif-like plaintiveness tugs at the heartstrings. Another Australian waif, Kylie Minogue (just kidding) pumped her booty out through the Kures like she was auditioning for 'Fame'. Her overpowering and overproduced *Better the Devil You Know* was delivered by the Kures with a full, rich and incredibly dynamic sound that was insanely detailed considering the layers of multitracking they had to peel away to reach this detail. As this seemed to bode well for some electronica, I pulled Savage Garden's *To The Moon and Back* out of retirement. Another unique voice, to be sure, but I was transfixed by the speed of the Kures and their lovely atmospherics.

Putting on Alex Lloyd's *Amazing* showed the Kurre 4s can deliver in the bass

department such that even a card-carrying bass freak like yours truly would happily trade off the arguably slight lack of really deep bass for the clarity and tunefulness that's the signature across the other bottom octaves. Listen to the bass chorus on the outstanding *Glory Glory* (Barorisi Ba Morena) and you'll hear immediately what I mean. Note also how the hand-clapping sounds so real that when the first claps start, you will wonder if what you're hearing is actually recorded or live.

Being a fan of soft-dome tweeters, (or perhaps that should be 'a fan of metal-dome tweeters') I was a little worried that perhaps the use of a ceramic dome was just trying to be high-tech for high-tech's sake. I shouldn't have doubted Crawford's integrity. This is one nice tweeter. Correction. This is one *very* nice tweeter. It's not just that it has a sweet tone that seems to ring (without actually *ringing*, if you know what I mean) but also that the tone remains so true off axis. Many tweeters that sound just fine when you're in the sweet spot go hellishly dull the fraction you move your head. Not this baby. I got further off to one side than I'd ever care to be and still the beautiful treble kept insinuating its way deliciously into my consciousness.

### Conclusion

When you go to audition Legend's new Kurre 4s,—which I sincerely hope and recommend you do—you'll find you're not so much 'listening' to them as 'experiencing' them. Get ready for the experience of a lifetime. —Andrew Sayle

**LAB REPORT**

Readers interested in a full technical appraisal of the performance of the Legend Acoustics Kurre 4 Loudspeakers should continue on and read the LABORATORY REPORT published on the following pages. All readers should note that the results mentioned in the report, tabulated in performance charts and/or displayed using graphs and/or photographs should be construed as applying only to the specific sample tested.